

Book Reviews

B.P.M. Hyland And T. Whiffin (1993). *Australian Tropical Rain Forest Trees - An interactive identification system*, including *Leaf Atlas of Australian Tropical Rain Forest Trees* by D.C. Christophel and B.P.M. Hyland. Pp 1160 in 3 volumes, plus two computer disks. CSIRO, Melbourne. Price \$195. ISBN 0 643 05403 0.

The professional taxonomist is more concerned with floral structures than with the fine detail of the leaves of a plant and rightly so. But there is a large group of Australian plants for which flowering or fruiting material is seldom available. For years botanists, ecologists, plant growers and amateur naturalists have had a great deal of work to do to track down the identity of northern Australian tropical trees.

It has been a case of laborious matching with known named material (if indeed this was available) and equally laborious literature searches to find details of the plant once identified. The further removed from the tropics and the less familiar one was with the vegetation the more difficult this could be.

In 1971 Bernie Hyland of CSIRO Division of Forest Research in Atherton published a 'Card Key to the Rainforest Trees of North Queensland' based on his own extensive knowledge of the plant material of the area between Townsville and Cooktown. This was an attempt to detail systematically the differences between the leaves of the more common rainforest trees of this area. Bark characters were also listed as a useful tool particularly for foresters and ecologists who were working with fresh material in the field.

This card key was extended to cover the area from Townsville to Torres Strait in 1982 and the way was open for the patient plant identifier to become more accurate and more skilled.

Now more than ten years later the next stage in this monumental work has been reached. The computer has replaced the card system and 'Australian Tropical Trees - An Interactive Identification System' by Bernie Hyland and Trevor Whiffin is the result. As the authors point out in their preface, the first primitive

stage of their key was loaded onto the Treasury computer in Brisbane in 1960 and the current epic brings together 30 years' work on the data base.

This publication consists of three volumes of printed information as well as an interactive key in both MSDOS and MacIntosh versions. Volume 1 of the printed material gives instructions for loading both versions of the program and lists all the features available for use in the key. The different character states and their applications are clearly illustrated and described. Volume 2 contains species descriptions and diagnoses under family headings. Volume 3 is a leaf atlas produced by David Christophel and Bernie Hyland showing mainly x-ray photographs of leaves or leaflets of all the tree species covered, now numbering 1056 and occurring between Townsville to Torres Strait and west to the Kimberley region of WA.

Not only leaf and bark characters are used in the current work – flower, fruit and seedling characters are also available and family and geographical location may be factored in where known to narrow down the possibilities. As this in an interactive key it can operate on as much (or as little) information as is available. The specimen is then compared with the descriptions of the taxon or taxa arrived at through the key and the final step is comparison with known material.

Note that this is not a tool for identifying those garden-grown sterile specimens which have lost their tags. It is almost essential to have some idea of where the plant occurs in order to narrow down the number of possibilities under these circumstances.

The key is designed for material from trees of more than 10cm diameter at breast height, more than 6m tall and growing in rainforest. In the 1982 version it was noted that fresh green leaves should be used wherever possible to ascertain leaf features. In this version it is noted that leaf specimens should be collected from the crown of the tree (which is not always possible).

Since in many cases the material available will not fulfil these criteria, being dried, collected well below the crown from trees which

are often smaller than desirable and growing along roads or pathways, where light exposure is different from inside the rainforest, it is necessary to tread with some care. As one very experienced identifier of rainforest plants has been heard to say, 'I can see oil dots because I know they should be there'. Experience and knowledge still play a substantial role in successful identification and comparison with known material is still necessary for final confirmation of an identification.

That said, the computer key in both MCDOS and MacIntosh versions is very easy to use. The character states are clearly explained in Volume 1 and moving through the key is simple and straightforward. As mentioned under 'Points to consider when using the key' note that some terms are used in other than their strict botanical sense. For example bracts or winged outgrowths of the stem are occasionally referred to as stipules when they occur where stipules might be expected.

Volume 1 also contains an exhaustive list of common and standard trade names under which each species may be known.

The species descriptions in Volume 2 and the leaf photographs in Volume 3 are invaluable for anyone with an interest in rainforest plants, and they are useful quite apart from the key. These two volumes constitute the first easily accessible compendium of information on northern Australian rainforest trees since W.D. Francis published his final edition of 'Australian Rainforest Trees' in 1970.

The key program may be loaded onto a laptop for use in the field. The accompanying volumes are rather bulky for field use and it would be very useful to be able to store the character sets used for each identification for further checking. This is not yet possible but may be considered for future editions of the package.

It is useful to be able to call up the character states listed for each species so that the differences between apparently similar species may be analysed. The MSDOS program allows the user to do this but is not possible with the MacIntosh program.

This package seems good value for the price (\$195) and it will undoubtedly encourage many people who felt daunted by card keys or

who did not have the resources for specimen matching to attempt their own identifications. The information in the printed volumes will be very valuable to professional botanical users and amateurs alike and the authors should be congratulated on an excellently designed and user-friendly product. In fact it is to be hoped that more of Australia's northern flora will be soon covered in as meticulous and user-friendly a fashion.

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B.R. Roberts and R.G. Silcock (1993). *Western Grasses: a Grazier's Guide to the Grasses of South West Queensland*. Pp.141. University of Southern Queensland Press, Toowoomba. Price. \$14. ISBN 0 949414 60 3.

In these days of increased awareness of the environmental factors affecting the condition of land in Australia, particularly in relation to its pastoral productivity, it is important to be able to promote a land-care ethic in as simple a way as possible. This is ably done by Roberts and Silcock in the introductory essay to their book on the grasses of Western Queensland entitled 'The Pastoral Zone and Its Management.' The theory of the complicated ecological network linking vegetation, climate, economics, pasture condition and management, fire, carrying capacity, stocking rates and movement is presented in a very clear manner by the authors, both of whom have many years of practical experience in this field. An indication of the South African connection of the senior author is revealed in the diagram on p 10 in the term 'veld type', which should be replaced by 'vegetation type' in the Australian context.

The second and main part of this book consists of an account of 52 grasses, those the authors consider to be the most common of South Western Queensland, in the form of one page of text accompanied by an illustration on the opposing page by Gillian Scott. In the introduction to this section the authors mention a figure of 117 grass species for South West Queensland. Without knowing their geographical boundaries this figure must be far too low, taking into consideration that a list of 338